

Forces and Strategies that Shaped the Wireless Revolution

Course No: 14:332:301

Class Hours: Tue-Fri 12-1:20 PM (Room: SEC 205)

Instructors: Narayan B. Mandayam and Richard Frenkiel

email¹: narayan,frenkiel@winlab.rutgers.edu, Office: WINLAB Technology Center C-108

Course Description :

This undergraduate course provides a broad view of how business strategies are created based on examples from cellular and other wireless systems. The course includes a historical overview of communications and communication systems, basics of wireless technology, technology and politics of cellular, basics of corporate finance, economics of cellular systems and spectrum auctions, case studies in wireless business strategy, the strategic implications of unregulated spectrum, a comparison of 3G and WiFi, sensor networks and the wireless future.

Topical Outline:

1. Systems Thinking and the nature of multi-disciplinary strategy
2. Communications, Common Carriers and Monopoly: a historical perspective
3. Wires and Waves: the age of instant communication
4. Mobile telephony on the eve of Cellular
5. Technology, Economics and Politics: the long road to cellular
6. Frequency and the cost of coverage
7. Channels and the cost of spectrum
8. Digital communications and the cost of bits
9. Conflicting standards; new regulatory strategies
10. Unlicensed spectrum; cordless telephones and WiFi
11. 3G and Infostations
12. Assets, profits and stock price: how companies keep score
13. Case studies in strategy: One-2-One, Nextel, CDMA v TDMA, AT&T, Iridium, 3G

Course Requirements:

Homework (20%), Midterm Exam (40%) & Final Project (40%)

Reference Material :

1. Notes/Handouts will be given each lecture
2. Assorted reading material will be posted on the course website:
www.winlab.rutgers.edu/~narayan/Course/Wireless_Revolution/301.html

¹Please use the subject heading "Wireless Course" in all emails